PIH6

DEVELOPING EVIDENCE-BASED TRADITIONAL CHINESE MEDICINE THROUGH OUTCOME RESEARCH

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OBJECTIVES: Evaluation of traditional Chinese medicines/complementary and alternative medicines (TCM/CAM) is generally difficult because their effectiveness might be confounded by multiple factors. It precludes the rational use of such therapies. In this article, we share our experiences of both retrospective and prospective outcome studies to provide evidence for safety profiles of TCM products and test their effectiveness. **METHODS:** & **RESULTS:** We conducted retrospective observational studies on the reimbursement database of National Health Insurance of Taiwan to explore the prevalent therapies of TCM and identify potential adverse effects and found that about 64.2% of people in Taiwan ever used TCM during 1997–2004, and prescriptions containing Radix Paeoniae and Radix Glycyrrhizae were associated with increased risks of hospitalization for acute hepatitis. We also documented that people taking more than 30 g of Mu-Tong or 60 g of Fangchi were significantly associated with chronic kidney disease. In addition, two prospective observational studies of new invented formula-TMN-1 and traditional formula-DJS (Duhuo Jisheng Tang) demonstrated that 12 weeks of TMN-1 therapy was a viable alternative treatment for menopausal syndrome in perimenopausal women; and 4 weeks of DJS therapy apparently reduced pain and stiffness for patients with osteoarthritis of knees, but seemed to be ineffective in treating flaccidity of knees or aversion to cold. **CONCLUSIONS:** Outcome researches can not only help developing safety profiles of TCM/CAM, but also provide evidence for modifying guidelines of clinical application. As more evidence is accumulated and synthesized, physicians trained in conventional medicine would be encouraged to use such medicines rationally.

INDIVIDUAL'S HEALTH – Cost Studies

PIH7

COMPARISON OF LEVONORGESTREL INTRAUTERINE SYSTEM (LNG-IUS) TO TUBAL LIGATION FOR CONTRACEPTION: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: Tubal ligation is highly efficacious at preventing pregnancies; however it is considered irreversible, resulting in information requests about reversal or in vitro fertilization. The study objective is to compare the cost-effectiveness of LNG-IUS (MIRENA®) and tubal ligation on contraception from a US payer's perspective. **METHODS:** A Markov model was developed to simulate costs savings associated with switching 2% of women (N = 2841) requiring contraception from tubal ligation (31.9–29.9%) to LNG-IUS (4.3–6.3%). The study population was based on a 1 million member plan and included females age 18–45 who desire contraception (N = 142,031). Method failure (resulting in ectopic pregnancy, spontaneous abortion, induced abortion, or birth), adverse events, and resource utilization were derived from the literature and supplemented with expert opinion when needed. Contraception drug cost for LNG-IUS was taken from Medi-Span Master 2007 Drug Database. Cost of tubal ligation was derived based on resource utilization and the national payment for relevant diagnosis-related groups (DRGs) from the Ingenix DRG Expert. Physician service and office visits costs were obtained from the average fees associated with the 2007 Procedural Terminology (CPT) codes. Both costs and effectiveness were discounted at 3% per year. Model outputs included pharmacy, medical, side effects, failure and total costs to the health plan for a two and five year time horizon. **RESULTS:** An increase of 2% of LNG-IUS resulted in a total cost savings of $6,080,038, and $5,490,281 from a 2 and 5 year timeframe respectively. There was a decrease in total contraception costs by 3.37%, and 2.26% from both a two and five year timeframe respectively. Sensitivity analysis showed that LNG-IUS remained cost-effective up to 3 times the acquisition cost for both a two and five year time horizon. **CONCLUSIONS:** Switching women from tubal ligation to LNG-IUS would offer significant savings to the health plan, while maintaining a woman's fertility.

PIH8

COMPARISON OF LEVONORGESTREL INTRAUTERINE SYSTEM (LNG-IUS) TO ORAL CONTRACEPTIVES (OC) ON CONTRACEPTION: A COST-EFFECTIVENESS ANALYSIS

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OBJECTIVES: Non-oral contraceptives, offer greater efficacy and little potential for patient compliance error compared to user dependent products such as oral contraceptives (OC). Patient non-compliance and subsequent high failure rates are a potential problem in the US. Therefore, use of non-oral contraception with LNG-IUS (MIRENA®) maybe a cost-effective strategy for a health plan. The study objective is to compare the cost-effectiveness of LNG-IUS and oral contraceptives (OC) on prevention of pregnancy from a US payer's perspective. **METHODS:** A Markov model was constructed to simulate cost savings associated with switching 2% of women (N = 2841) requiring contraception from OC (27.5–25.5%) to LNG-IUS (4.3–6.3%). The study population was based on a 1-million member plan and included females age 18–45 who desire contraception (N = 142,031). Method failure (resulting in ectopic pregnancy, spontaneous abortion, induced abortion, or birth), adverse events, and resource utilization were derived from the literature and supplemented with expert opinion when needed. Contraceptive methods costs were taken from Medi-Span Master 2007 Drug Database. Physician service and office visits costs were obtained from the average fees associated with the 2007 Procedural Terminology (CPT) codes. Both costs and effectiveness were discounted at 3% per year. Model outputs included pharmacy, medical, side effects, failure, and total costs to the health plan for a two and five year time horizon. **RESULTS:** An increase of 2% of LNG-IUS resulted in a total cost savings of $2,146,663 (0.70%) and $8,952,120 (1.42%) from a two and five year timeframe respectively. There was a decrease in total contraception, medical, side effects and failure costs. Sensitivity analysis showed that LNG-IUS remained cost-effective up to two and six times the acquisition cost from a two and five year time horizon respectively. **CONCLUSIONS:** This study shows that switching women from OC to LNG-IUS would offer significant savings to the health plan.

PIH9

A SIMULATION MODELING OF THE EFFECT OF DOSING SCHEDULE ON THE BENEFIT AND COST-EFFECTIVENESS OF PNEUMOCOCCAL VACCINATION IN CANADA

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OBJECTIVES: Pneumococcal vaccination schedules vary from 3 doses (2 + 1) to 4 doses (3 + 1) across Canadian provinces. We evaluate the effect of the variation in dosing strategy on health outcomes, costs, and cost-effectiveness of vaccination with the new 10-valent pneumococcal non-typeable Haemophilus influenzae protein-D conjugate vaccine (PHiD-CV) compared with the 7-valent pneumococcal conjugate vaccine (PCV-7). **METHODS:** We developed an age-compartmental, population-based model to simulate the vaccine effect at steady-state for one year across the whole population. Model outputs include clinical endpoints and economic measures. Incremental Cost-Effectiveness Ratios (ICERs) are computed from the health care system perspective, calculating the incremental cost for incremental health gain. Productivity loss is reported separately and not included in the ICER. One-way and probabilistic sensitivity analyses were performed to evaluate the robustness of the model to variations in the underlying parameter assumptions. **RESULTS:** Vaccination with 4 doses of PHiD-CV or PCV-7 would prevent an additional 296 and 222 cases of invasive pneumococcal disease (IPD) respectively compared with 3 doses. PHiD-CV (2 + 1) would prevent 116,493 more cases of Acute Otitis Media (AOM) than PCV-7 (2 + 1), and 94,076 more cases of AOM than PCV-7 (3 + 1). Furthermore, PHiD-CV (3 + 1) would prevent 76,875 more cases of AOM than PHiD-CV (2 + 1). The incremental cost-effectiveness analysis indicates that compared with no vaccination, PHiD-CV (2 + 1) is cost-effective. Compared with PHiD-CV (2 + 1), PHiD-CV (3 + 1) is cost-effective. However, PHiD-CV (less costly and higher health gain) dominates PCV-7. **CONCLUSIONS:** Vaccination with 4 doses of PHiD-CV or PCV-7 offers a higher protection against IPD compared with 3 doses. PHiD-CV (2 + 1) prevents more cases of AOM compared with both PCV-7 (2 + 1) and PCV-7 (3 + 1). PHiD-CV (3 + 1) offers better protection against IPD and AOM compared with a 2 + 1 schedule. At price parity vaccination with PHiD-CV is the dominant strategy. From the societal perspective, PHiD-CV (3 + 1) dominates PHiD-CV (2 + 1).

PIH10

COST EFFECTIVENESS OF ORAL BISPHOSPHONATES ADMINISTERED ON EXTENDED DOSING INTERVALS

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OBJECTIVES: The objective of this study was to estimate the cost effectiveness of oral bisphosphonates administered on extended dosing intervals (i.e., monthly or weekly instead of daily regimens) in the U.S. Military Health System. **METHODS:** Claims data were analyzed for all female patients over age 18 prescribed oral bisphosphonates in the Military Health System. Patients were identified as persistent or non-persistent [defined as patients whose proportion of days covered (PDC) was less than 80% during a 1-year period] in a regression model that adjusted for comorbidities, duration of illness, and demographics. Two hypothetical cohorts (weekly alendronate vs monthly ibandronate) were evaluated in the second stage of the model. Total health care costs for the hypothetical 10,000-patient cohorts were estimated based on fracture rates (persistent group = 8.9%, non-persistent group = 11%) and treatment costs (average $3,053/fracture) obtained from the clinical literature and mean days of therapy and drug acquisition costs obtained from claims data. **RESULTS:** The regression model predicted persistence probabilities of 45.92% and 41.76%, respectively, for patients receiving oral bisphosphonate products dosed monthly versus weekly. This improved adherence was projected to result in an additional 9 fractures avoided over a one-year treatment period with monthly vs. weekly dosing. Treatment given monthly was estimated to increase 1-year total health care costs by $212 per patient compared to weekly treatment. Taking into account pricing of recently available generics for alendronate, the incremental cost effectiveness ratio (ICER) analysis resulted in an incremental cost of $235,605 per fracture avoided. **CONCLUSIONS:** The analysis and model suggest that monthly-dosed bisphosphonate products likely result in increased persistence and more fractures avoided when compared to weekly bisphosphonate treatment, but at a significant cost per fracture avoided.